Analgesic effects of Mathan Thylam- A pharmacognostic review

Kanimozhi S¹, Ponmalar E¹, Bupesh G², Mathiyazhagan M³, Vasanth S⁴, Sahoo U. K⁵

¹Department of Anatomy, Sri Sairam Siddha Medical College & Research Centre, Chennai, India.
²Department of Forest Science, Nagaland University(Central), Lumami, zunheboto, Nagaland-798627, India.
³Department of Botany, Silapathar Science College, Amritpur, Silapathar, Dhemaji-Dist, Assam-787059, India.
⁴Research & Development Wing, Sree Balaji Medical College & Hospital, Bharath Institute of Higher Education and Research, Chennai, India.
⁵Department of Forestry, School of Earth Sciences and Natural Resource Management, Mizoram University, Aizawl, India.

Article History:
Received on: 28 Sep 2019
Revised on: 06 Feb 2020
Accepted on: 15 Feb 2020

Keywords:
Mathan Thylam, Datura, Analgesic, Topical medicine, Scopolamine

ABSTRACT

Mathan Thylam is a medicated oil which is widely used as a topical medicine. In native of Siddha system, this oil is prescribed to heal all types of ulcers and wounds. It is very effective in curing severe carbuncle ulcer of diabetes, diabetic foot ulcers. The oil has a wide variety of other therapeutic topical applications such as eczema, bedsores itches, weeping eczema, wounds, folliculitis, anal fistula, ear infections, per anal abscess, alopecia, non-healing of cut and burns wounds. The vital compositions of the mathan thylam are constituted with thurusu (copper sulphate), datura leaf and coconut oil. These active ingredients, present in mathan thylam acts to play a major role in healing ulcers. In this study, we aimed to prove the analgesic effect of mathan thylam. As a result of the presence of datura leaf, mathan thylam can be used as an unsurpassed analgesic than any other medicated oils. This oil is used to reduce pain as well as inflammation. The Phytochemical and GCMS analysis of a hydroalcoholic extract of the mathan thylam revealed the presence of coumarin, steroid, alkaloid, saponin, furan, quinine and triterpenoid. This comprehensive review includes information on botany, phytochemistry, pharmacology and ethnomedical uses of datura, which is the key ingredient in mathan thylam to be used as a topical analgesic.

INTRODUCTION

While oral pain meds have for quite some time been the pillar of treatment, they are not without threats (Parveen et al., 2016). In the expectation of delivering comparable viability while lessening the hazard for unfavourable adverse events, substitute formulations have been developed, including buccal, subcutaneous, sublingual, etc., (Ardila and Ardila, 2002). To reduce the danger of foundational unfavourable events, topical administration by means of topical patches, gels, creams, ointments and solutions expects to furnish local analgesia with a lesser level of complete distribution (Chang et al., 1999). To pass the hydrophilic, corneum stra-
tum, lipophilic, and low-molecular-weight qualities are required (Kadam et al., 2018). Since topically administered stuff keeps away from absorption in the gastrointestinal tract and has constrained first-pass digestion, they have notably less systemic disclosure when contrasted to oral drugs, in spite of valuable concentrations in the focused on tissues (Thiyagarajan, 2004).

**ABOUT DATURA ALBA**

**Plant Parts Used**
The whole plant is utilized in therapeutics (Table 1). Its leaf, bloom, roots, dried leaves, and dried seeds are moreover used freely for different purposes. The plant all in all has anodyne, pain-relieving, rest activating and antispasmodic action (Oseni et al., 2011).

<table>
<thead>
<tr>
<th>Language</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tamil</td>
<td>Ummattai, Umate</td>
</tr>
<tr>
<td>Hindi</td>
<td>Dhattura, Kadadhattura</td>
</tr>
<tr>
<td>Bengali</td>
<td>Dhotra, Dhatura, Dhutura</td>
</tr>
<tr>
<td>Kannada</td>
<td>Unnatta, Unmattegida Rote-cubung, Ummam</td>
</tr>
<tr>
<td>Marathi</td>
<td>Dhotra, Dhatura</td>
</tr>
<tr>
<td>Punjabi</td>
<td>Dhattur, Dhattura</td>
</tr>
<tr>
<td>English</td>
<td>Thorn apple</td>
</tr>
<tr>
<td>Telugu</td>
<td>Ummetta, Ummatta</td>
</tr>
<tr>
<td>Bihari</td>
<td>Khunuk</td>
</tr>
<tr>
<td>Gujarathi</td>
<td>Dhatura, Dhauturo, Dhanturo</td>
</tr>
</tbody>
</table>

**Dynamic Components at Different Parts of Datura**

(Parveen et al., 2016) The plant includes select useful groups of secondary metabolites such as steroids, alkaloids, saponins, tannins, flavonoids, phenols and glycosides. All components of the plant are harmful, yet the greatest measures of alkaloids are contained in the ripe seeds (Oseni et al., 2011). All Datura plants contain tropane alkaloids such as scopoline, hyoscyamine and atropine (Mdee et al., 2009; Adams and Garcia, 2005).

**Datura Leaves**

*Datura* leaves have a bitter taste and comparable trademark smell like datura seeds. It is used in making herbal plasters. It is likewise used as anodyne and antispasmodic (Chang et al., 1999). *Datura* leaves are maximum toxic a part of datura plant. Leaves comprise a high amount of toxic alkaloids called *Daturine* and albumen in addition to mucilage and ash. These alkaloids include about 25% potassium nitrate.

**Preparation of Mathanoil**
The formula for the preparation of the Mathan oil (Thiyagarajan, 2004).

It contains 3 ingredients, namely

1. Thurusu purified (Copper sulphate) powder – 350 gm.
2. Umathai leaf juice(Datura alba) - 5 lit
3. Coconut oil- 2 lit

First, the thurusu crystals were fired in a dry pan and powered well as a part of purification. Then the datura leaves were washed, and the juice was taken by crushing the leaves. These are added to the boiling coconut oil one by one. At correct stage the oil was taken off from fire and allowed to cool. Then it is filtered and used for various purposes.

**DISCUSSION**

Many experience pain because of poor calcium assimilation brought about by the general absence of good quality normal nourishment worldwide for certain decades now. Plain datura oil, when applied topically influences the sensory system locally and very quickly (Stanos and Galluzzi, 2013). Datura increases body temperature and improves blood circulation by the tropical application.

Atropine and scopolamine be aggressive adversaries of muscarinic cholinergic receptors and are nervous system depressants. Datura is very effective for Nerve, Muscle, Tendon Pain Relief and Healing from fresh wounds Old Injury. Datura oil can be utilized accurately on those responsive regions, much the same as the face, wherein the nerve endings are high-quality and susceptible. It offers profound rest and agony cure. T gradually mends and revives the skin. It is brilliant for those with pain and aches brought about by intense injury or rehashed injury to a territory or related to a zone of the body.

The scopolamine is an alkaloid present in Datura, which has a therapeutic use because of its antimuscarinic and anticholinergic effects (Balachandran and Govindarajan, 2005). Scopolamine is on the list of essential drugs of the World Health Organization. Scopolamine crosses the blood-brain barrier very easily, causing alterations in the brain (Ebert et al., 1998). It has inhibitory outcomes on muscarinic receptors (especially M1), blocking them in order that nerve cells can’t receive Acetylcholine. Acetylcholine is an essential neurotransmitter in our frame because it participates in muscle contraction. The basal nucleus of Meynert is part of our...
mind full of cholinergic cells (freeing and receiving acetylcholine), scopolamine appears to have a special effect on this place.

Specifically, it prevents the information to be remembered from being transmitted to memory storage locations along with the hippocampus. That is, it prevents the facts from being set in memory. It is also feasible that scopolamine blocks the past-time of other neurotransmitters inclusive of Serotonin, Mostly in the limbic gadget. This could produce psychosis and different documented psychiatric signs and symptoms in some sufferers who are predisposed to suffer them.

The maximum disturbed cognitive functions beneath the outcomes of this drug are: Word studying, running memory, free recall, Semantic memory, autobiographical reminiscence, facts retrieval, lexical retrieval, and speed of facts processing (Eftekhari et al., 2005; Martínez and Mejía, 2001).

Scopolamine combines with central nervous system depressants like benzodiazepines and phenothiazines and causes GABAergic effects. GABA is the main inhibitory neurotransmitter of the nervous system, which causes analgesic, sedative effects, and drowsiness.

CONCLUSION

Topical application of mathan thylam is the best solution for the management of pain. The bioactive compound scopolamine is one of the important metabolites in Datura alba leaves which possess a potent anti analgesic, and anti-inflammatory activity helps in the control and management of various types of pains.

Funding Support

The authors declare that they have no funding support for this study.

Conflict of Interest

The authors declare that they have no conflict of interest for this study.

REFERENCES


